WHAT IS CLAIMED IS:

1. A process for preparing a substrate having alignment features for optical components, said substrate having an x, y, z, orientation and a substrate surface along an xz plane, said substrate having a specific point thereon , said process comprising:

applying a stop etch mask to a substrate, said mask defining the location on said substrate of a groove for receiving said waveguide and one or more fiducials for positioning said optical device on said substrate relative to said waveguide; and

etching said substrate to define said fiducials and said groove, said groove being dimensioned to receive at least a portion of a waveguide and said fiducials enabling said optical device to be positioned on said substrate such that it is optically aligned with said waveguide.

2. The process of claim 1, wherein said etching comprises using an inductively coupled plasma etching process.

3. The process of claim 2, wherein said inductively coupled plasma etching process is a Bosch process.

4. The process of claim 1, wherein at least one of said fiducials comprises a planar surface substantially perpendicular to said substrate surface, and said groove is deeper than 13μm from said substrate surface.

5. The process of claim 4, wherein said groove is a U-groove.

6. The process of claim 5, wherein said U-groove has a bottom at about 60 to about 65μm from said substrate surface.

8. The process of claim 6, wherein etching said U-groove comprises etching a U-groove terrace, said U-groove and U-groove terrace defining edges for receiving a waveguide.

7. The process of claim 1, wherein said substrate is form from a materials selected from the group consisting of polycrystalline silicon, silica, and ceramics.

8. The process of claim 1, further comprising etching an etched field encompassing said fiducials.

9. The process of claim 1, wherein a first fiducial defines a first register surface a first certain distance from said substrate surface along said y-axis, a second fiducial defines a second register surface a second certain distance from said specific point along said x-axis, a third fiducial defines a third register surface a third certain distance from said specific point along said z-axis, and wherein said groove, and said first, second and third fiducials are located on said substrate using the same mask.

10. The process of claim 9, wherein a mechanical stop has a fourth register surface a fourth certain distance from said specific point along said z-axis, said mechanical stop being adjacent to said groove and adapted to contact a waveguide in said groove to position it from said specific point along the z-axis.

11. The process of claim 1, wherein a mechanical stop has a fourth register surface a fourth certain distance from said specific point along said z-axis, said mechanical stop being adjacent to said groove and adapted to contact a waveguide in said groove to position said waveguide from said specific point along the z-axis.

12. The process of claim 1, further comprising disposing an optical device on said substrate in a certain position relation with respect to said fiducials.

13. The process of claim 12, wherein optical device is disposed on said substrate by visually aligning said optical device to said fiducials.

14. The process of claim 12, wherein said optical device is disposed on said substrate by physically contacting said optical device with said fiducials

15. The process of claim 12, wherein further comprising disposing a waveguide in said groove

16. The process of claim 1, wherein the tolerance of the alignment of said groove to said fiducials is less than ± 0.2 μm.

17. The process of claim 1, wherein said waveguide is a fiber.

18. The process of claim 1, wherein said optical device is at least one of a laser, photodetector, or monitor.

19. A substrate formed according to the process of claim 1.

20. An optical component substrate comprising:

a groove for receiving a waveguide; and

fiducials for facilitating the alignment of an optical device on said substrate;

wherein the tolerance of the alignment of said groove to said fiducials is less than $\pm 0.2\mu m$.

21. An optical subassembly comprising:

an optical component substrate comprising at least:

a groove for receiving a waveguide; and

fiducials for facilitating the alignment of an optical device on said substrate;

wherein the tolerance of the alignment of said groove to said fiducials is less than $\pm 0.2\mu m$.

a waveguide disposed in said groove; and

an optical device aligned with said fiducials.

22. The optical subassembly of claim 21, wherein said optical device is a laser.

23. A transceiver comprising the optical subassembly of claim 22.